

REMARKS

The Official Action mailed April 17, 2007, has been received and its contents carefully noted. This response is filed within three months of the mailing date of the Official Action and therefore is believed to be timely without extension of time. Filed concurrently herewith is a *Request for Continued Examination*. Accordingly, the Applicant respectfully submits that this response is being timely filed.

The Applicant notes with appreciation the consideration of the Information Disclosure Statements filed on February 25, 2005; August 4, 2005; February 3, 2006 and July 28, 2006. However, the Applicant has not yet received acknowledgment of the Information Disclosure Statement filed on April 19, 2007 and request consideration in a subsequent action.

Claims 25-212 are pending in the present application, of which claims 25, 27, 29, 31, 33, 35, 37, 39, 41, 43, 45, 47, 49, 51, 53 and 55 are independent. Claims 25-56 have been amended to correct typographical and grammatical informalities and to better recite the features of the present invention. The amendments submitted herewith are the same as those previously submitted in the Supplemental Amendment filed April 11, 2007, which were apparently not timely received and processed before the issuance of the Official Action of April 17, 2007. Therefore, these amendments are resubmitted at this time together with an RCE and favorable consideration is requested for the reasons discussed in detail below. Claims 57-61, 63-70, 72-79, 81-88, 90-97, 99-106, 108-115, 117-133, 135-142, 144-151, 153-160, 162-169, 171-178, 180-187, 189-196 and 198-200 have been withdrawn from consideration by the Examiner. For the reasons set forth in detail below, all claims are believed to be in condition for allowance. Favorable reconsideration is requested.

Paragraph 2 of the Official Action rejects claims 25, 26, 33, 34, 41, 42, 49 and 50 as anticipated by U.S. Patent No. 6,414,280 to Nishitani. The Applicant respectfully submits that an anticipation rejection cannot be maintained against the independent claims of the present application, as amended.

As stated in MPEP § 2131, to establish an anticipation rejection, each and every element as set forth in the claim must be described either expressly or inherently in a single prior art reference. Verdegaal Bros. v. Union Oil Co. of California, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

The rejection is not understood. The Official Action asserts that Nishitani discloses that "the intensity of the light is changed due to the switching on and off of the light source, the light source in a first stage allows the source to be switched on within a cycle of one second or shorter since switching on of the light source is an instant action wherein the light source is further controlled, in a second stage, by changing the amount of heat or the time duration applied to the heating source to further provide a desired temperature during a cycle of one second or longer." In the Response to Arguments section, the Official Action further asserts that Nishitani '280 shows "the on and off of the switch wherein the lamp is also stayed on longer than one second after the initial stage of the off and on stage."

Independent claims 33 and 49 recite heating the substrate (or semiconductor film) with a plurality of light pulses, each light pulse having a cycle of one second or shorter, and each light pulse being formed by switching on and off a light lamp source. Nishitani simply does not disclose such feature. Nishitani discloses heating a substrate with a light by switching on and off a lamp source only one time. More specifically, as previously noted, Nishitani discloses "[w]ith the lamp control power supply 17 receiving a lamp light control signal ... the lamps 10 are energized and lighted for a prescribed time (10 to 20 seconds) ... the supply of current to the lamps 10 is stopped, [and] the lamps 10 are switched off ..." (column 16, lines 1-13). Therefore, Nishitani fails to disclose that a substrate is heated with a plurality of light pulses, or that each pulse has a cycle of one second or shorter. In this regard, the assertions at page 2 of the Official Action ("a cycle of one second or shorter"), and the assertions at page 7 ("longer than one second") appear to be contradictory in that Nishitani at best discloses a single pulse which could not possibly meet both of these limitations. Therefore, Nishitani does not

disclose the above-referenced features of claims 33 and 49, either explicitly or inherently and thus these claims cannot be anticipated by Nishitani.

Independent claims 25, 33, 41 and 49 have been amended to recite "heating the substrate with a plurality of light pulses." Since, as noted above, Nishitani discloses only a single pulse, Nishitani cannot disclose a plurality of light pulses or that each pulse has a cycle of one second or longer. Therefore, these claims also cannot be anticipated by Nishitani and favorable reconsideration is requested.

Since Nishitani does not teach all the elements of the independent claims, either explicitly or inherently, an anticipation rejection cannot be maintained. Accordingly, reconsideration and withdrawal of the rejections under 35 U.S.C. § 102 are in order and respectfully requested.

Paragraph 4 of the Official Action rejects claims 27, 28, 43, 44, 71, 134, 143, 201, 203, 205, 207 and 210 as obvious based on the combination of Nishitani in view of U.S. Patent No. 6,461,439 to Granneman and U.S. Patent No. 6,399,921 to Johnsgard. Paragraph 5 of the Official Action rejects claims 29, 30, 45, 46, 51, 52, 62, 80, 98, 152, 170, 179, 209 and 211 as obvious based on the combination of Nishitani in view of U.S. Patent No. 5,006,695 to Elliott. Paragraph 6 of the Official Action rejects claims 31, 32, 35-40, 47, 48, 53-56, 89, 107, 116, 125, 161, 188, 197, 202, 206 and 212 as obvious based on the combination Nishitani, Granneman, Johnsgard, and in further view of Elliott. Paragraph 7 of the Official Action rejects claims 204 and 208 as obvious based on the combination of Nishitani and Elliott as applied to 29, 30, 45, 46, 51, 52, 62, 80, 98, 152, 170, 179, 209 and 211 and further in view of Granneman and Johnsgard.

In each case, the Applicant respectfully submits that a *prima facie* case of obviousness cannot be maintained against the independent claims of the present application, as amended. As stated in MPEP §§ 2142-2143.01, to establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to

combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. Obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either explicitly or implicitly in the references themselves or in the knowledge generally available to one of ordinary skill in the art. "The test for an implicit showing is what the combined teachings, knowledge of one of ordinary skill in the art, and the nature of the problem to be solved as a whole would have suggested to those of ordinary skill in the art." In re Kotzab, 217 F.3d 1365, 1370, 55 USPQ2d 1313, 1317 (Fed. Cir. 2000). See also In re Fine, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988); In re Jones, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

The prior art, either alone or in combination, does not teach or suggest all the features of the independent claims, as amended. As described above, Nishitani does not teach or suggest at least the claimed features of "heating the substrate with a plurality of light pulses" and that "each light pulse has a cycle of one second or longer" or that "each light pulse has a cycle of one second or shorter", either explicitly or inherently. The further references to Granneman, Johnsgard, and Elliott do not overcome this deficiency in Nishitani.

In this regard, it is noted that the Official Action asserts that Elliott shows a heating system wherein a heating element in a first stage has a plurality of pulse forms that turns the heating on and off in a high ratio, and as the heating element reaches the desired heating temperature in a second stage, the ratio of the on and off time is decreased. Elliott '695 in col. 4, lines 23-35 merely discloses waveforms 110, 112, 114, and 116 represent that the output of the process controller 30, the output of the power control circuit 50, the output of the logic control circuit 36 and the output of the solid state relay 56, respectively. However, Elliott '695 does not appear to disclose a light pulse and a lamp light source.

Accordingly, claims 27-32, 35-40, 43-48 51-56, 62, 71, 80, 89, 98, 107, 116, 125, 134, 143, 152, 161, 170, 179, 188, 197 and 201-212 are allowable for at least the reasons discussed above and favorable reconsideration is requested.

Should the Examiner believe that anything further would be desirable to place this application in better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number listed below.

Respectfully submitted,



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